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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/607,045	06/27/2003	Ryuzo Okada	238395US2RD	6417
22850	7590	02/11/2008		
OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314				
			EXAMINER	
			SENF, BEHROOZ M	
		ART UNIT	PAPER NUMBER	
		2621		
		NOTIFICATION DATE	DELIVERY MODE	
		02/11/2008	ELECTRONIC	

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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<b>Office Action Summary</b>	Application No. 10/607,045	Applicant(s) OKADA ET AL.	
	Examiner Behrooz Senfi	Art Unit 2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 13 November 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 7-13 is/are rejected.
- 7) ☒ Claim(s) 6 and 14 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |  |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input checked="" type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. <u>1/30/2008</u>                            |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application  |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                           |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11/13/2007 has been entered.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 5 and 13 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The claim(s) contains subject matter, noted in claims 5 and 13, lines 2 - 3, when a trajectory of the obstacle candidate area tracked over the plurality of frame images in not smooth, is not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Applicant fails to explicitly explain the above subject matter in a clear and concise language in the specification of the present application.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1 – 4, 7, 9 – 12, 15 and 17 – 21 are rejected under 35 U.S.C. 102(e) as being anticipated by Taniguchi (US 6,456,730).

Regarding claim 1, Taniguchi '730 discloses, an image processing apparatus (i.e., fig. 1, image processing 10) comprising: means for inputting a plurality of frame images serving as video images (i.e., fig. 1, image input 12), means for detecting, from each frame image in the plurality of frame images a straight-line component in a specific direction (i.e., figs. 3 – 7, col. 4, lines 45 – 57, detecting the straight line), means for generating an obstacle candidate area as an image area in a vicinity of the detected straight-line component (i.e., figs. 11 – 14, cols. 6, lines 40 – col. 8, lines 2, search, e.g., generate, candidate block), means for tracking the obstacle candidate area in an image succeeding each frame image in the plurality of frame images (i.e., figs. 10 – 14, col. 5, lines 55 - 67), and producing a tracking result for the obstacle candidate area (i.e., figs. 11 – 12), means for determining, using the tracking result of three or more obstacle candidate areas, whether the three or more obstacle candidate areas belong to a specific plane and producing a determination result (i.e., figs. 11 – 14, cols. 6, lines 1 –

55 and col. 8, lines 1 - 21), and means for detecting an obstacle based on the determination result (i.e., fig. 13, detection of obstacle/objects).

Regarding claim 2, Taniguchi '730 discloses, the image processing apparatus according to claim 1, wherein the means for detecting, from each frame image in the plurality of frame images, detects a straight-line component in the horizontal direction (i.e., calculating the white line, which are in the horizontal direction, as a straight line, disclosed in col.4, lines 45 – col. 5, lines 22).

Regarding claim 3, Taniguchi '730 discloses, the image processing apparatus according to claim 1, wherein the means for determining determines whether the three or more obstacle candidate areas belong to a horizontal plane (i.e., figs. 13 – 14, col. 6, lines 1 – 15, indicating obstacle candidate areas belong to a horizontal plane, e.g., X-direction).

Regarding claim 4, Taniguchi '730 discloses, means for setting an image area in a vicinity of the detected straight-line component as a search area for the obstacle candidate area (i.e., figs. 6 – 11, and 13), and means for tracking the obstacle candidate area by comparing an image feature in the obstacle candidate area with an image feature in the search area (i.e., fig. 10A – 10B, col. 5, lines 55 – 67).

Regarding claim 7, Taniguchi '730 discloses, the image processing apparatus according to claim 1, wherein means for detecting an obstacle detects when a number of obstacle candidate areas that are determined by the means for determining not to belong to the specific plane is greater than a predetermined number (i.e., fig. 14, col. 6,

lines 48 – 55 and col. 8, 11 – 21, searching candidates blocks having correlation value below the TH, e.g., predetermined value).

Regarding claim 9, Taniguchi '730 discloses, an image processing apparatus (i.e., fig. 1, image processing 10) comprising: a camera configured to input a plurality of frame images serving as video images (i.e., fig. 1, image input 12, e.g., camera), a tracking unit configured to detect a straight-line component in a specific direction from each frame image in the plurality of frame images (i.e., col. 4, lines 45 – 66, detection of straight line), to generate an obstacle candidate area as an image area in a vicinity of the straight-line component (i.e., col. 5, lines 23 – 67, search candidate blocks), to track the obstacle candidate area in an image succeeding each frame image in the plurality of frame images (i.e., figs. 10A – 10B, col. 5, lines 55 – 67), and to produce a tracking result for the obstacle candidate area (i.e., figs. 10A – 10B, col.5, lines 55 – 67), and a detector configured to determine, using the tracking result of three or more obstacle candidate areas (figs. 13 – 14, col. 6, lines 1 – 55), whether the plural obstacle candidate areas belong to a specific plane and configured to detect an obstacle based on the determination (i.e., figs. 13 – 14, col. 6, lines 1 – 55).

Regarding claim 10, the limitations claimed are substantially similar to claim 2 above, therefore the ground for rejecting claim 2 also applies here.

Regarding claim 11, the limitations claimed are substantially similar to claim 3 above, therefore the ground for rejecting claim 3 also applies here.

Regarding claim 12, the limitations claimed are substantially similar to claim 4 above, therefore the ground for rejecting claim 4 also applies here.

Regarding claim 15, the limitations claimed are substantially similar to claim 7 above, therefore the ground for rejecting claim 7 also applies here.

Regarding claim 17, the limitations claimed are substantially similar to claim 1, thus have been analyzed and rejected in claim 1 above.

Regarding claims 18 – 20, the limitations claimed are substantially similar to claims 2 - 4 above, therefore the grounds for rejecting claims 2 – 4 also applies here.

Regarding claim 21, the limitations claimed are substantially similar to claim 1 above, therefore the grounds for rejecting claim 1 also applies here. Furthermore, as for, determining using a change of relative two dimensional position of three or more obstacle candidate regions between two or more image frame in the plurality of image frames (i.e., fig. 10A – 10B shows determining change of relative two dimensional position, e.g., i,j, and i-2,j-2 of obstacle candidate between two or more image frame in the plurality of image frames).

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 8, 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taniguchi (US 6,456,730) in view of Ishii et al. (US 6,993,159).

Regarding claim 8, Taniguchi '730 discloses, an image processing apparatus (i.e., fig. 1) including a moving object detection section (i.e., fig. 1, element 16) for detecting the moving object in obstacle candidate areas.

Taniguchi '730 is silent in regards to explicit of, estimating a position of the obstacle in a frame image based on a motion of the three or more obstacle candidate areas.

Ishii in the same field (i.e., figs. 10A – 10B, col. 8, lines 28 – 35) teaches, estimating a position of the obstacle in a frame image based on a motion.

In view of the above, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to combine the teaching of Taniguchi and Ishii to detect the moving body with respect to the motion of the respective portions, e.g., candidate areas, of the image, as suggested by Ishii (i.e., col. 8, lines 5 – 35).

Regarding claim 16, the limitations claimed are substantially similar to claim 8, thus have been analyzed and rejected.

#### ***Allowable Subject Matter***

8. Claims 6 and 14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

#### ***Contact***

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Behrooz Senfi whose telephone number is 571-272-7339. The examiner can normally be reached on M-F 7:00-3:00.



If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mehrdad Dastouri can be reached on 571-272-7418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Behrooz Senfi  
Examiner  
Art Unit 2621

